COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF HYDEN-LESLIE COUNTY WATER DISTRICT OF LESLIE COUNTY, KENTUCKY FOR ORDER OF APPROVING CONSTRUCTION FINANCING, CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY, AND INCREASED RATES	)))))	CASE NO. 93-021

O R D E R

IT IS ORDERED that Hyden-Leslie County Water District ("Hyden-Leslie") shall file an original and 10 copies (two copies of engineering-related materials) of the following information with the Commission, with a copy to all parties of record within 28 days from the date of this Order. If the information cannot be provided by this date, Hyden-Leslie should submit a motion for an extension of time stating the reason for which a delay is necessary and include a date by which the information will be furnished. Such motion will be considered by the Commission. Hyden-Leslie shall furnish with each response the name of the witness who will be available at the public hearing, if one is held, for responding to questions concerning each item of information requested.

1. Provide hydraulic analyses, supported by computations and actual field measurements, of typical operational sequences of the existing water distribution system as presently configured and operated. These hydraulic analyses should demonstrate the operation of all pump stations and the "empty-fill" cycle of all water storage tanks. Computations are to be documented by a

labeled schematic map of the system that shows pipeline sizes, lengths, connections, pumps, water storage tanks, and sea level elevations of key points, as well as allocations of actual customer demands. Flows used in the analyses shall be identified as to whether they are based on average instantaneous flows, peak instantaneous flows, or any combination or variation thereof. The flows used in the analyses shall be documented by actual field measurements and customer use records. Justify fully any assumptions used in the analyses.

2. Provide a summary of any operational deficiencies of the existing water system that are indicated by the hydraulic analyses or that are known from experience.

3. In order to obtain realistic results when utilizing computer hydraulic analyses to predict a water distribution system's performance, engineering references stress the importance of calibrating the results predicted to actual hydraulic conditions. This calibration process should include matching field measurements to the results predicted by the computer over a wide range of actual operating conditions. At a minimum this should include average and maximum water consumption periods, as well as "fire flow" situations and very high demand periods.

Based on the above, explain the procedures used to verify the computer hydraulic analyses filed in this case. This explanation should be documented by field measurements, hydraulic calculations, etc.

4. Most engineering references state that instantaneous customer demands can peak at 3 to 15 times the 24-hour average demand. In addition, most engineering references also state that a water distribution system should be designed to meet at least the maximum hourly demand of its customers.

a. State exactly what measurements were made of Hyden-Leslie's maximum hourly usage. If the maximum hourly usage was not measured directly, state why it was not.

b. State exactly how the diurnal pattern for Hyden-Leslie's system was determined. Also detail how the diurnal demand multipliers for any hydraulic analyses were determined. This response should be documented by appropriate field measurements.

5. Provide a pressure recording chart showing the actual 24-hour continuously measured pressure available at the locations listed below on Hyden-Leslie's system. Identify the 24-hour period recorded, the exact location of the pressure recorder, and the sea level elevation of the recorder. Also state the schematic junction number nearest the location of the pressure recorder:

a. In the vicinity of the proposed water storage tanks.

b. At or near all existing tank sites and on the suction and discharge sides of all pump stations.

c. At any other locations necessary to provide a complete understanding of the existing system operation.

6. Provide a list of Hyden-Leslie's water storage tanks. Give the location, capacity, and overflow elevation of each tank. Explain how water is supplied to each tank.

7. Provide a list of Hyden-Leslie's existing pump stations. Give the location, number of pumps and each pump's rated capacities, and the purpose of each pump station. Explain how the operation of each pump station is controlled. Provide a copy of the pump manufacturer's characteristic (head/capacity) curve for each of Hyden-Leslie's existing pumps. Identify each curve as to the particular pump and pump station to which it applies. Also state if the pump is in use, will remain in use, will be abandoned, or will be replaced.

8. Provide a copy of the pump manufacturer's characteristic (head/capacity) curve on which the design of the proposed pump stations are based.

9. Provide the criteria used in determining the location, size, overflow elevation, and head range for the proposed water storage tanks. Provide detailed information on how the sea level elevation for the proposed tank sites was determined. Identify the particular methods and specific vertical datum and bench marks used in this effort. In addition, state what other sites were considered and why they were not selected.

10. Provide a narrative description of the proposed daily operational sequences of the water system. Documentation should include the methods and mechanisms proposed to provide positive control of all storage tank water levels. The description should also include an hourly summary of how all tanks (existing and proposed) will "work" (expected inflow or outflow of water) and how

all pumps will function. The description should be fully supported by appropriate field measurements and hydraulic calculations.

11. Provide a highway map at a scale of at least one inch equals two miles marked to show Hyden-Leslie's water distribution system. The map of the system shall show pipeline sizes, location, and connection as well as pumps, water storage tanks, and sea level elevations of key points.

12. Provide hydraulic analyses, supported by computations and actual field measurements, of typical operational sequences of the water distribution system with the improvements proposed in this case in place. These hydraulic analyses should demonstrate the operation of all pump stations and the "empty-fill" cycle of all water storage tanks. Computations are to be documented by a labeled schematic map of the system that shows pipeline sizes, lengths, connections, pumps, water storage tanks, and sea level elevations of key points, as well as allocations of actual customer demands. Flows used in the analyses shall be identified as to whether they are based on average instantaneous flows, peak instantaneous flows, or any combination or variation thereof. The flows used in the analyses shall be documented by actual field measurements and customer use records. Justify fully any assumptions used in the analyses. (Note - these analyses should use the same schematic as the analyses of the existing water distribution system to facilitate comparison.)

13. If the hydraulic analyses, which are provided in response to this information request, are computer-generated provide a copy

of the input data on an IBM compatible 5 1/4-inch or 3 1/2-inch floppy disk.

14. The engineering report states that 563 new customers are estimated to connect to the system as a result of the construction.

a. State whether this estimate is still correct.

b. Provide the number of new customers that will be residential and the number that will be commercial.

c. State the connection size anticipated for the new customers.

d. Provide the date Hyden-Leslie expects to begin serving the new customers.

15. Provide an estimated date that Hyden-Leslie will begin serving the industrial park, the estimated usage, and meter connection size(s).

16. State whether Hyden-Leslie will agree to eliminate the last two rate increments of its rate design.

17. Explain how Hyden-Leslie determines whether a new customer will be classified as a residential or commercial customer.

18. State whether Hyden-Leslie will agree to serve all customers under one rate schedule instead of the current two, or charge rates based on connection size.

19. Provide the number of different size meters currently connected to the system and the number of customers for each size meter.

20. The engineering information submitted indicates that Hyden-Leslie is proposing to install 34 fire hydrants as part of this project. Commission Regulation 807 KAR 5:066, Section 10(2b), states in part that "[f]ire hydrants may be installed by a utility only if: a. A professional engineer with a Kentucky registration has certified that the system can provide a minimum fire flow of 250 gallons per minute; and b. The system supporting this flow has the capability of providing this flow for a period of not less than two (2) hours plus consumption at the maximum daily rate."

Based on this regulation, the proposed fire hydrant installations must be deleted from the project unless certification in accordance with the regulation can be provided.

Done at Frankfort, Kentucky, this 18th day of March, 1993.

PUBLIC SERVICE COMMISSION

For the Commission

ATTEST:

Executive Director